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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/667,078  
Filing Date: September 18, 2003  
Appellant(s): CHEE, CHONG HIN

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Calvin B. Ward  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 13 March 2006 appealing from the Office  
action mailed 15 November 2005.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

**(9-1)** The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**(9-2)** Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Endo (US 20040246285 A1).

Endo discloses:

With regards to claim 1, a print mechanism (fig. 2) comprising:

a print head assembly (fig. 2, element 28) comprising a position detector (29) and a marking device (36), said position detector comprising an imaging device for forming an image of a portion of an edge of a print medium (sensor 29 detects various edges of the print medium as shown in fig. 9 and described in 0127), said print medium having a top edge, side edges, and a bottom edge (figs. 2 and 9);

an actuator (fig. 2, element 30) for moving said print head assembly relative to said print medium in a predetermined direction (0101); and

a controller (fig. 7, element 54) for determining a location for said edge of said print medium from said formed image (page 7, 0133, Endo determines positions of the leading edge and side edges of the print medium and uses these values to calculate skew and the position of the print media, based on the position, borderless printing operations are controlled to eject ink onto the print medium and prevent waste from overspray of ink, see section 0118 and portions thereafter).

With regards to claim 2, the controller determines a brightness value for the print medium from the image (0099, sensor detects intensity of reflected light, which is used by controller to compare the intensity to a known intensity to determine if the paper is being detected, by detecting and determining the intensity of the reflected light, controller determines a brightness value for the print medium).

With regards to claim 3, the controller determines a location for said top edge of said print medium from said image (0133).

With regards to claim 4, the controller determines if said print medium is correctly aligned in said print mechanism by comparing a plurality of edge locations measured at different distances from said top edge of said print medium (0082, figs. 9 and 10).

With regards to claim 5, a method of printing on a print medium having a top edge, a bottom edge and side edges (figs. 2 and 9), said method comprising:

forming an image of a portion of one of said edges of said print medium (figs. 9 and 10, sensor detects leading and side edges of print medium and forms an image thereof, 0127); and

determining a location for said imaged edge of said print medium from said image (at each point of detecting, controller stores the location of detection, 0133).

With regards to claims 6 and 7, said imaged edge is one of said side edges or said top edge (sensor detects leading and side edges).

With regards to claim 8, determining a brightness measure for said print medium from said image (0099, sensor detects intensity of reflected light, which is used by controller to compare the intensity to a known intensity to determine if the paper is being detected, by detecting and determining the intensity of the reflected light, controller determines a brightness value for the print medium).

With regards to claim 9, determining the alignment of said print medium in a print mechanism by comparing a plurality of images of portions of said edge of said print medium (figs. 9 and 10, 0082).

***Claim Rejections - 35 USC § 103***

**(9-3)** The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**(9-4)** Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Endo in view of Wen (U.S. 6,109,745).

Endo discloses everything claimed with the exception of determining a length and width of the print medium from a plurality of images of portions of edges.

Wen discloses using a sensor to determine the length and width of print medium from a plurality of images of portions of edges of the print medium (column 3, lines 8-11).

It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize a sensor to determine the width and length of the media by forming images of portions of edges, as suggested by Wen, for the purpose of enabling the device to automatically determine the size of the print medium so that during image processing, the image size may be adjusted in accordance with the size of the print medium (fig. 4).

**(9-5)** Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endo in view of Miyakawa (U.S. 4,617,580).

Endo discloses everything claimed with the exception of dispensing a quantity of ink at one point on said print medium, wherein said quantity depends on a determined brightness.

Miyakawa discloses dispensing a quantity of ink at one point on said print medium, wherein said quantity depends on a determined brightness (a detector detects brightness of the sheet and printing is performed by ejecting a larger quantity of ink on a point of the print medium, column 5, lines 19-51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Miyakawa into Endo for the purpose of providing a device which can print at an optimal density on any type of recording medium (column 3, lines 13-15).

**(10) Response to Argument**

**(10-1)** Applicant argues that Endo does not disclose an image device for forming an image of a portion of an edge of a print medium, as found in apparatus claim 1, and the method step of forming an image of a portion of one of said edges of said print medium, as found in method claim 5.

One must first determine the meaning of the term “image”.

In *Phillips v. AWH Corporation et al.*, 75 USPQ2d 1321 (CAFC 2005), the CAFC provided an exhaustive discussion of the importance of the specification in claim construction. Some of the courts comments are provided below.

The claims, of course, do not stand alone. Rather, they are part of “a fully integrated written instrument,” *Markman*, 52 F.3d at 978, consisting principally of a specification that concludes with the claims. For that reason, claims “must be read in view of the specification, of which they are a part.” *Id.* at 979. As we stated in *Vitronics*, the specification “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” 90 F.3d at 1582.

This court and its predecessors have long emphasized the importance of the specification in claim construction. In *Autogiro Co. of America v. United States*, 384 F.2d 391, 397-98 (Ct. Cl. 1967), the Court of Claims characterized the specification as “a concordance for the claims,” based on the statutory requirement that the specification “describe the manner and process of making and using” the patented invention. The Court of Customs and Patent Appeals made a similar point. *See In re Fout*, 675 F.2d 297, 300 (CCPA 1982) (“Claims must always be read in light of the specification. Here, the specification makes plain what the appellants did and did not invent . . .”).

Shortly after the creation of this court, Judge Rich wrote that “[t]he descriptive part of the specification aids in ascertaining the scope and meaning of the claims in as much as the words of the claims must be based on the description. The specification is, thus, the primary basis for construing the claims.” *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985).



On numerous occasions since then, we have reaffirmed that point, stating that “[t]he best source for understanding a technical term is the specification from which it arose, informed, as needed, by the prosecution history.” Multiform Dessicants, 133 F.3d at 1478; Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings, 370 F.3d 1354, 1360 (Fed. Cir. 2004) (“In most cases, the best source for discerning the proper context of claim terms is the patent specification wherein the patent applicant describes the invention.”); see also, e.g., Kinik Co. v. Int’l Trade Comm’n, 362 F.3d 1359, 1365 (Fed. Cir. 2004) (“The words of patent claims have the meaning and scope with which they are used in the specification and the prosecution history.”); Moba, B.V. v. Diamond Automation, Inc., 325 F.3d 1306, 1315 (Fed. Cir. 2003) (“[T]he best indicator of claim meaning is its usage in context as understood by one of skill in the art at the time of invention.”).

That principle has a long pedigree in Supreme Court decisions as well. See Hogg v. Emerson, 47 U.S. (6 How.) 437, 482 (1848) (the specification is a “component part of the patent” and “is as much to be considered with the [letters patent] in construing them, as any paper referred to in a deed or other contract”); Bates v. Coe, 98 U.S. 31, 38 (1878) (“in case of doubt or ambiguity it is proper in all cases to refer back to the descriptive portions of the specification to aid in solving the doubt or in ascertaining the true intent and meaning of the language employed in the claims”); White v. Dunbar, 119 U.S. 47, 51 (1886) (specification is appropriately resorted to “for the purpose of better understanding the meaning of the claim”); Schriber-Schroth Co. v. , Cleveland Trust Co., 311 U.S. 211, 217 (1940) (“The claims of a patent are always to be read or interpreted in light of its specifications.”); United States v. Adams, 383 U.S. 39, 49 (1966) (“[I]t is fundamental that claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention.”).

The importance of the specification in claim construction derives from its statutory role. The close kinship between the written description and the claims is enforced by the statutory requirement that the specification describe the claimed invention in “full, clear, concise, and exact terms.” 35 U.S.C. § 112, para. 1; see Netword, LLC v. Centraal Corp., 242 F.3d 1347, 1352 (Fed. Cir. 2001) (“**The claims are directed to the invention that is described in the specification; they do not have meaning removed from the context from which they arose.**”); see also Markman v. Westview Instruments, Inc., 517 U.S. 370, 389 (1996) (“[A claim] term can be defined only in a way that comports with the instrument as a whole.”). In light of the statutory directive that the inventor provide a “full” and “exact” description of the claimed invention, the specification necessarily informs the proper construction of the claims. See Merck & Co. v. Teva Pharms. USA, Inc., 347 F.3d 1367, 1371 (Fed. Cir. 2003) (“A fundamental rule of claim construction is that terms in a patent document are construed with the meaning with which they are presented in the patent document. Thus claims must be construed so as to be consistent with the specification, of which they are a part.”) (citations omitted). In Renishaw, this court summarized that point succinctly:

Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction (citations omitted).

Consistent with that general principle, our cases recognize that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs. See CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). In other cases, the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor.

In that instance as well, the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive. See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1343-44 (Fed. Cir. 2001).

The pertinence of the specification to claim construction is reinforced by the manner in which a patent is issued. The Patent and Trademark Office ("PTO") determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction "in light of the specification as it would be interpreted by one of ordinary skill in the art." In re Am. Acad. of Sci. Tech. Ctr., 367 F.3d 1359, 1364 (Fed. Cir. 2004). Indeed, the rules of the PTO require that application claims must "conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description." 37 C.F.R. § 1.75(d)(1). **It is therefore entirely appropriate for a court, when conducting claim construction, to rely heavily on the written description for guidance as to the meaning of the claims.**

Turning to the specification in the present application, page 4, lines 11-15, it is stated that:

"The image generated by the position detector is preferably a plurality of pixel values organized as a plurality of rows that run in the direction of travel of the print head. Hence, each horizontal line in the image in the vicinity of the edge of the paper **will be a step function that is white over the paper and dark over the print carriage**".

It will be appreciated that by the term "print carriage" applicant is referring to the roller/platen that supports and feeds the paper.

The above cited passage is, in the examiner's opinion, the only portion of the specification which provides some guidance as to how to interpret the language "form an image".

Applicant has provided a dictionary definition from The American Heritage Dictionary that defines an image as:

"An optically formed duplicate, counterpart, or other representative reproduction of an object, especially an optical reproduction formed by a lens or mirror".

It should be noted that the examiner previously commented in the advisory action of 1 February 2006 that the language "representative reproduction of an object" in the definition supported the rejection. Upon further review, the examiner withdraws this statement and it should be disregarded. It is further noted that applicant's statement that "The examiner goes on to state that extrinsic evidence should not be relied upon in interpreting claims" is incorrect (see page 4, last paragraph of the brief). Rather, the examiner stated that it should not be relied upon solely for claim interpretation.

Applicant is arguing that the image is a duplicate, or reproduction of an original. The words duplicate and reproduction, in the context of imaging, are generally associated with a photograph. In the present invention, such an image would be a photographic type image of the paper and/or platen, while applicant's specification refers to an image as only a step function with either high or low intensity output. It should be recognized that these two types of images are entirely different.

The applicant states that:

"The examiner ignores the rule that terms in claims are given their ordinary meaning in the art unless defined otherwise by the applicant. Applicant's reference to the dictionary definition of the image is used to support Applicant's assertion as to the ordinary meaning of the term. The examiner has not presented any evidence that the term has a different meaning than that asserted by applicant." (see page 4, last paragraph); and

"absent a clear definition to the contrary, the terms in a patent application are given their ordinary meaning in the art" (page 5, second paragraph of the appeal brief) and "The examiner has not pointed to any such clear definition that makes it clear that applicant intends to define the term image differently from the ordinary meaning of the term" (see page 5, second paragraph of the appeal brief);

Through these statements, applicant is effectively stating that the USPTO must completely disregard applicant's own specification in interpreting the scope of the term "image" in the claims and instead rely on a dictionary definition. This is entirely improper.

Further, the definition is outside of the boundaries of the specification and the specification does not describe any structure which is capable of forming an image of the type described in the dictionary definition.

It is further noted that while the examiner is not stating that applicant has explicitly defined the term imaging, the examiner is advocating that the language should be used as a guide for claim interpretation (applicant implies throughout the arguments that applicant has not explicitly defined the term imaging).

The specification "is the single best guide to the meaning of a disputed term," and "acts as a dictionary when it expressly defines terms used in the claims *or when it* denies terms by implication." Vitronics, 90 F.3d at 1582; Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004) ("Even when guidance is not provided in explicit definitional format, the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents.") (citations omitted); Novartis Pharms. Corp. v. Abbott Labs., 375 F.3d 1328, 1334-1335 (Fed. Cir. 2004) (same); Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001) ("[A] claim term may be clearly redefined without an explicit statement of redefinition.").

Accordingly, even though applicant has not provided an explicit definition for the term imaging, this does not prevent one from using the specification to interpret the term imaging. In fact, in this instance, the specification is the best source of claim construction since the term, as it is provided in the dictionary, is beyond the scope of applicant's invention.

Further, dictionaries are problematic as sources of claim construction. "The main problem with elevating the dictionary to such prominence is that it focuses the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent. Properly viewed, the ordinary meaning of a claim term is its meaning to the ordinary artisan after reading the entire patent. Yet heavy reliance on the dictionary divorced from the intrinsic evidence risks transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification. The use of a dictionary definition can conflict with that directive because the patent applicant did not create the dictionary to describe the invention. Thus, there may be a disconnect between the patentee's responsibility to describe and claim his invention, and the dictionary editors' objective of aggregating all possible definitions for particular words... A claim should not rise or fall based upon the preferences of a particular dictionary editor, or the court's independent decision, uninformed by the specification" (Phillips v. AWH Corporation et al. 75 USPQ2d 1321 (CAFC 2005)).

For all of the reasons provided above, the examiner requests that this dictionary definition be disregarded and that the specification be relied upon for claim interpretation.

It should be clear that the term imaging refers to:

"a plurality of pixel values organized as a plurality of rows that run in the direction of travel of the print head. Hence, each horizontal line in the image in the vicinity of the edge of the paper **will be a step function that is white over the paper and dark over the print carriage**".

It is also noted that applicant's sensor is a reflection type sensor which includes a light emitter and a light detector.

Endo, at 0127, states that:

"the target of the incident light emitted by the light emitting section 38 changes from the platen 26 to the print paper P, and therefore, the intensity of the electric signal which is the output value of the light receiving section 40 of the reflective optical sensor 29, which received the reflected light, changes."

It should be clear from a comparison of the above language of the specification and the cited portion of Endo, that both Endo and applicant's invention use reflection type optical sensors with an emitter and a detector to form practically identical images which consist of electric signals of different output intensity representative of detection of either paper or a paper support portion.

Accordingly, based on the above noted comparison, applicant's argument that Endo does not form an image is not deemed persuasive.

Applicant further argues that "the light and dark regions in question are within the image formed by the photodetector of the edges of the print medium, not merely light and dark regions as detected by a single photodetector as it crosses an edge". The examiner completely disagrees with this statement for the reasons provided above; the specification does not support this interpretation. The specification clearly states that the image consists only of light and dark portions and is a step function.

**(10-2)** Applicant argues that Endo does not determine a brightness value for the print medium.

Endo discloses at 0099 that the intensity of the reflected light is determined, this intensity represents the brightness value for the print medium.

Further, Applicant's specification at page 4, lines 16-21 states that:

“For the purposes of the present discussion, it is sufficient to note that a threshold can be defined that distinguishes the paper from the underlying paper carriage mechanism. Portions of the image having a brightness greater than this threshold are assumed to be over the paper, and portions of the image having a brightness less than or equal to this threshold are assumed to be over the print carriage”.

Similarly, Endo discloses at 0127 that “the system controller compares the measured value with a predetermined threshold, and determines whether the target of the incident light is the print paper P or not”.

Endo further determines a brightness value for the print medium as the threshold value.

**(10-3)** Applicant argues the combination of Endo and Wen. The statements made in these arguments are entirely misrepresentative of the rejection. Applicant states that “According to the examiner, one would be motivated to include the sensor of Wen in the device of Endo to determine the size of the print medium during image processing”. In fact, the actual motivational statement provided by the examiner is that “It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize a sensor to determine the width and length of the print medium”. No where in the rejection did the examiner state that the sensor of Wen should be provided on the carriage of Endo. Endo already discloses a carriage mounted sensor, and the combination merely suggest using that sensor to determine the length and width of the print medium. Applicant has already admitted that the sensor can be used in such a manner, since applicant stated that “the device of Endo can already determine the size of the print medium by using the measured positions of various edges” (see page 6, section C, second paragraph of the brief). Applicant further states that there is no motivation to add a separate device for providing this function since the device of Endo already can determine the function. In fact, the 103 rejection merely states that it would be obvious to use the sensor of Endo to determine length and width of the print medium. Accordingly, there is motivation for the combination.



(10-4) Applicant argues the combination of Endo and Miyakawa. Applicant states that Miyakawa does not teach altering the amount of ink dispensed based on a determination of the brightness of the media, since Miyakawa teaches changing the quantity of ink dispensed based on whether the print medium is transparent. Applicant further states that Miyakawa measures light transmitted by the medium and not the brightness.

In making this argument, it is the examiner's opinion that applicant fails to consider the combination and instead, attacks each reference individually. No where in the arguments has applicant argued against the combination as a whole.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant's argument that Miyakawa does not teach altering the amount of ink dispensed based on a determination of the brightness of the media, since Miyakawa teaches changing the quantity of ink dispensed based on whether the print medium is transparent, is not logically sound. Detecting whether a media is transparent and controlling amount of ink deposited depending on such detection does not thereby prohibit altering the amount of ink dispensed based on a determination of the brightness of the media, since a measure of brightness may be used to detect transparent print medium. In fact, this is precisely what is disclosed by Miyakawa.

Applicant's argument that Miyakawa measures the light transmitted by the medium and not the brightness is incorrect. Miyakawa specifically states in column 5, lines 57-58 that "In the above embodiment, the photo-sensors may be of reflecting type". In measuring reflectance of the light, the device measures the brightness of the medium and uses this brightness to determine the type of paper and control printing accordingly.


Accordingly, considering the combination of references, which applicant has not considered, Endo teaches a reflection type optical sensor and Miyakawa teaches use of a reflection type optical sensor to detect either transparent or non-transparent medium and a measure of the reflection of light from such medium is a measure of brightness. Accordingly, the combination teaches the claimed invention.


**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

  
Julian D. Huffman  
30 March 2006

  
**STEPHEN MEIER**  
**SUPERVISORY PATENT EXAMINER**

Conferees:

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